FLAT KEY PROFILE FOR A LOCK-KEY SYSTEM

DESCRIPTION

[0001] The invention relates to a flat key profile for a lock and key system in which a key channel corresponding to the key profile is provided in the lock cylinder.

[0002] The term flat key is also understood to mean rib profile keys or locking rib profile keys, i.e., those profiles in which ribs protrude beyond the key side surface.

[0003] Keys are mimicked or copied for a variety of reasons, with a distinction being made between legal and illegal.

[0004] Copying is made more difficult by such key profiles or at least made more difficult by the fact that they are protected profiles, ie those which have been granted patent or utility model protection.

[0005] For such keys there is the possibility of reordering via the lock manufacturer or authorized locksmiths.

[0006] On the other hand, it is known that locksmiths are also able, through the use of copying machines, to produce duplicates having profiles protected on their own. However, there are profiles for which this is not so easy and therefore an approximation to the actual profile is attempted by simplifications. This includes, for example, the shape of the lateral profile grooves.

[0007] In commercial copying machines, namely, a thin circular saw blade is used, which can only make right-angled cuts in the key. If V-shaped cuts are required for the copy, only a rectangular cut can be made as a replacement.

[0008] Embodiments of the invention seek to complicate the machine copying a key profile.

[0009] Embodiments of the invention provide a flat key profile for a lock and key system, in which a key channel corresponding to the key profile is provided in the lock cylinder, thereby,

- the key profile of the key shank has an upper profile section facing the key back and a lower profile section facing the key chest,
- in that projecting notches are provided in the lower profile section starting from the key-breast in the key-shaft plane,
- a triangular, paracentric profile groove 2 projecting beyond the median plane of the key shank is provided in the lower profile section in the one side face of the key shank,
- a triangular profile groove arranged above or below the opposite paracentric profile groove is provided on the opposite side surface of the key shank, the profile base of which has a horizontal distance from the profile base of the opposite paracentric profile groove,
- the arrangement of the paracentric profile groove relative to the opposing profile grooves is such that an imaginary line perpendicular to the keychain plane from the

intersection of the upper or lower leg of the paracentric profile groove with the key side surface to the opposite profile groove, to an imaginary line extending from the intersection of upper or lower leg of the opposite profile groove with the key side surface extends to the paracentric profile groove, has a vertical distance.

[0010] According to an aspect of the present invention, there is provided a flat key profile for a lock and key system, in which a key channel corresponding to the key profile is provided in the lock cylinder, characterized, that the key profile of the key shank having a side facing the key back upper profile section and a key front of the facing lower profile section, that protruding notches are provided from the key-breast in the key-shank plane into the lower profile section, that in the lower profile section in the one side surface of the key shank a triangular, the center plane of the key shank superior, paracentric profile groove is provided, that on the opposite side surface of the key shank, a triangular profile groove is provided above or below the opposite paracentric profile groove whose profile base has a horizontal spacing to the profile base of the opposite paracentric profile groove arrangement of the paracentric profile groove relative to the opposite profile grooves is such that an imaginary line perpendicular to the key shaft plane from the intersection of the upper or lower leg of the paracentric profile groove with the key side surface to the opposite profile groove, to an imaginary line, which has a vertical distance extending from the intersection of the upper or lower leg of the opposite profile groove with the key side surface to the paracentric profile groove.

[0011] Two opposing profile features are used, which are triangular (V-shaped). The profile features are symmetrical and have radii in their base.

[0012] If two opposing features are now arranged so that they are very close to each other with profiles milled right-angled, then the key would break in this area. The minimum overlap should be 0.2mm and the maximum residual thickness 0.3mm. In order to produce the triangular cuts (profile features) economically, the deeper notch should have an angle of a = 110 °.

[0013] There must be at least two incisions that are offset from each other. Starting from the deeper incision, either "above" or "below" this one further incision must be present.

[0014] Since, as mentioned above, the copying machine with a rectangular milling disc cannot produce a V-shaped profile groove, the profile groove must be milled rectangular as a replacement, whereby it is inevitably wider.

[0015] Since, however, according to embodiments of the invention further arrangement relationships or features must be taken into account, this leads to the key shank becoming too thin at certain points, so that it breaks during the copying process or at the latest during use.